Timely Farm Hints

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BEANS!

How to Grow Beans for Home and Market.

A valuable food crop eminently suited for planting between newly planted sugar cane and pineapples rows.

Types And Varieties

Dwarf or bush type—These can be grown closely together and do not require support. They mature earlier than the pole or trailing varieties, and are possibly more wind and drought resistant, but do not bear as heavily as do the tall growing varieties.

The best known types of these beans are the **green-podded** and **wax-podded** varieties, which are grown for "snap shorts,—the pods being gathered when young and tender, broken and cut into short lengths, and boiled for the table.

Standard varieties of the green-podded bush bean succeeding in Hawaii are—Burpees Stringless Green Pod, Canadian Wonder and Refugee or "1000 to 1." Of the yellow or wax-podded type—Improved Golden Wax, Prolific Black Wax, Davis White Wax and Ventura Wonder Wax, will usually give satisfaction.

Bush beans may be planted in rows eigtheen inches to three feet apart, depending whether they are to be cultivated in beds by hand or wheel hoe, or in field culture by horse implements. The seed should be dropped four to six inches apart in the row, closer planting is undesirable.A pound of seed will plant about 100 feet of row. 50 pounds will plant an acre under field culture.

Varieties suitable as dry or shell beans may also be had in the dwarf or bush form. Typical varieties are the Maui Red, Calico and small white navy extensively grown in the Kula region on Maui, Lady Washington is an improvement over the small white navy. The small white Tepary is perhaps more drought resistant than any other bean thus far introduced. California Bayo beans are of semi-running type and thrive in some sections in Hawaii. Pinks and Red Mexican are somewhat similar to the Bayo type. Red Kidney is also an old standard shell bean. All the above varieties are worthy of trial for growing on a commercial scale for export or local consumption. They would be especially well adapted for inter-cropping with newly planted cane and pineapples.

Stress should be laid at this time upon the available resources of the sugar and pineapple plantations for growing food crops in case of emrgency. The inter space, averaging about five feet between the rows of newly planted cane and approximately from four to six feet between newly planted pineapples, will often adapt itself admirably for planting single or double rows of beans and similar crops. Aside from the cost of seed, planting and harvesting, comparatively little expense will be entailed for the extra tillage. The bush or dwarf types of beans are preferable for such inter-croppings since the tendrels of the trailing varieties might interfere with the main crop.

Pole or running beans may be had in the various types named under bush beans. In fact many of the bush form have sported from the tall varieties. The season of growth and fruiting is longer in the tall varieties. They bear proportionally heavier, and the pods are easier picked when the plants are supported on poles or trellises. Supporting the vines is of course an added expense and may not be practable on a large scale. In growing dry shelled beans of the trailing type on a commercial scale, they are not supported, but the vines are cut, cured and the beans thrashed direct from the vines.

Pole beans require a richer soil than the shallow rooted quick maturing bush sorts. It will usually pay to manure and fertilize heavily unless the soil is already very fertile.

Standard varieties of pole beans succeeding well over a wide range under Hawaiian conditions are—Kentucky Wonder or Old Homestead, deservedly one of the most popular early green-podded snap pole beans. Listed by all seedsmen and seed always available at a reasonable price. A white seeded form of the Kentucky Wonder has recently been introduced and has given good satisfaction to the writer,either as a snap or shelled bean Lazy Wife is another superior green-podded pole variety, but matures much later than the Kentucky Wonder. It bears white seed which makes it desireable for dry shell beans. Kentuck Wonder Wax is one of the few satisfactory pole wax beans. Pole beans should be given at least twice the space allotted to the bush type. Correspondingly less seed is needed.

Lima beans may be had in dwarf or climbing type. Burpee's introductions of Improved Bush and Forhcook Bush are very large seeded and of superior quality. Dreer's Bush or Kumerle is a smaller seeded than the Burpee type. Very prolific, but not suited to wet localities because of pods being close to ground. Should be well suited to rather dry sandy soils. Henderson's Bush Lima is the earliest lima bean we have tested. Appears to stand adverse conditions better than either of the above.

Bush limas develop at least a month earlier than the pole varieties. However, all types of limas beans are gross feeders, and require a rich soil to mature large crops. It is a good plan to plant bush limas several seeds in a hill, hills set about 2 feet apart each way.

Pole limas are the parents of all the bush types. They are characterized by their rank growth and are often very prolific in seed bearing. The comparatively small seeded and early Sieva or Butter bean of the South succeeds well in Hawaii. The larger white limas are often shy bearers. However, King of the Garden, Early Leviathan and Aggler & Musser's "Monstrous," have given good satisfaction. (Although classed as of bush type by the introducers, the latter variety has proved of running type in our trials.)

We have found dropping two or three seeds per hill, hills set four by four feet apart, about right for field culture. If polled in the home garden about the same distances are recommended. About 25 pounds of lima beans will be required to plant an acre of above distances. The very large seeded varieties will germinate better if the 'eye' is turned downward in planting.

Soils and climate best suited for beans—The "Kula" (Maui) deep, light silty soils have proved ideal for commercial growing of shell beans, and the most extensive areas devoted to the bean crop are to be found in that region. The dry climate has also doubtless much to do with the success attained in Kula. The warm dry climate of the plains region about Paia and Puunene on Maui, where the soil is also of a silty nature although much heavier than at Kula, is also well suited for bean culture when water is available for irrigation. In general it may be said that light loamy soils are best for beans. The crop will not tolerate cold or wet, soils or climate beans should be planted to two inches in depth, light dry soils require deep planting, heavy moist soils shallow planting, otherwise the seed will rot, and it is useless to plant under such conditions.

Dependent Upon Soil And Moisture Conditions

Bush beans mature their seed in 50 to 90 days, except some varieties of limas which require longer. Edible snap beans may often be picked in less than fourty days when conditions are favorable. Running varieties require a much longer season for growth. Some of the pole limas requiring six months to mature a full crop.

The soil should be well prepared for beans. Deep and thorough tillage, in the process of which large quantities of organic matter should be incorporated with the soil. If green manuring is practiced the green crop should be plowed under some months before the seed is sown. If manure is used it should be well rotted before being applied to the land, or the land left lay for a month before planting. Discharrow the land to destroy weeds and thoroughly mellow the soil before planting.

It will often pay to use commercial fertilizers in the plant row. Not more than 300 pounds per acre of a high grade fertilizer rich in phosphates is recommended. Bone meal makes an excellent base and the nitrogen should preferably be in the form of blood or some other quickly available organic form.

Planting is best done with a one or two horse bean cultivator. Such machines do accurate and rapid planting when rightly handled.

Shallow cultivation should be regular and continuous.

Where irrigation is practiced care should betaken not to water to excess as it causes excessive leaf growth at the expense of pod and seed. Cultivation after each irrigation if possible. It conserves moisture and stimulates growth.

The bean crop will not thrive in exposed, windy locations, but require a warm, sheltered position. As an inter-crop with young corn, cane, etc. it finds ideal conditions. But shade is very detremental as it causes the plants to become drawn and spindly.

Owing to the quick maturity of some varieties, they lend themselves admirably as a catch crop. Beans are also well fitted to rotate with other crops, such as corn and potatoes.

The crop rarely requires artificial inoculation under Hawaiian conditions. However, the bean crop has a number of enemies. The cut worm is especially troublesome some years. This pest is best combatted with poisoned bait. We have found that 3 pounds Paris green or an equal amount of white arsenic thoroughly mixed with one bag bran and one bag middlings, or cheap flour, the whole to be moistened with a gallon of molassas, previously thinned with three or four gallons of water, if spread along side the plant rows and excellent remedy. The amount specified is sufficient for two applications on an acre.

Where the bean rust is prevalent the Eordeauv mixture appears to be helpful.

Snap beans must be harvested when young. For family use they may be picked when very young and tender, but for shipment they should be well filled out and firm to prevent excessive wilting. Careful attention to picking will greatly prolong the growing season.

If wanted for dry shell beans, close watchfulness is necessary not to harvest before the majority of the pods are ripe, nor to wait until the pods begin to shatter their seed. Dwarf varieties are best pulled 'roots and all' and spread on sheets to dry. Heavy vine varieties are best cut close to the ground and when reasonably dry they may be stacked for further curing. Thrashing may be done by flail, tramping out by horses or by machine thrashing. A small thrasher capable of handling a ton or two of seed daily can be bought for about $200.00. A six horse-power engine will be required to operate it satisfactorily.

For extensive plantings such as might be undertaken by sugar plantations larger outfits would be practical.

For home use the mature pods may be picked by hand as they ripen. While somewhat tedious ,this method insures the maximum yields.

The safe storage of beans is somewhat of a problem in Hawaii. The bean weaval is very prevalent and unless kept under control is sure to bring about heavy losses.

We have found an air tight structure built of tongue and groove lumber and lined with tarred felt roofing, quite satisfactory as a fumigating chamber. A space 5' X 5' X 5' will readily hold 20 one hundred pound bags of beans. A half pound carbon bisulphate applied monthly we have found effective in preventing weavel infection.

To bring the highest market price, dry shell beans should be well cleaned and if necessary hand sorted.

Cull beans and bean straw make excellent feed for work mules, cattle and swine. Large quantities of all these by-products have been fed at the Haiku Sub-Station with eminent success.

Emergency Agricultural Information

A Revised Select List of Vegetable Varieties and Food Crops for Hawaiian Conditions. Also Data on Amount of Seed Required for Planting. (Only the more important reasonably early maturing vegetables are here considered. For complete cultural directions and other useful data apply to Extension Division, Hawaii Experiment Station, U. S. Dept. of Agri., Haiku, Maui, or Honolulu, Hawaii.)

BEANS, (Crop matures in about 50 to 90 days).

Bush—1 pound per 100 foot row; 50 pounds per acre. (Dist. ½' x 3')

Green-Podded: Stringless Green Pod, Canadian Wonder, Early Refugee.

Yellow-Podded: Improved Golden Wax, Prolific Black Wax, Davis White Wax.

Pole—¾ pound per foot row; 40 pounds per acre. (Dist. 1½' x 3')

Green and Wax-Podded: Kentucky Wonder or Old Homestead, Kentucky Wonder Wax, White Creaseback.

Lima—1 pound per 100 foot of row; 50 pounds per acre. (Dist. ¾' x 3')

Bush: Burpee's Improved, Dreer's Bush or Kumerle, Henderson's Bush.

Pole: King of the Garden, Early Leviathan.

Dry or Shelled—¾ pound per 100 foot row; 40 pounds per acre. (Dist. ½' x 3') The following varieties of beans are well adapted to intercropping with newly planted sugar cane or pineapples. Approximately half the amount of seed recommended above will be required when planted between 5 foot rows of cane or about two-thirds as much when planted beween the more closely set pineapples.

Bush: Maui Reds, Calicos, Small White Navy, Lady Washington or Large Navy, White Tepary (for dryest localities), Bayo, Pink, Red Kidney, Mexican Red, Broad Windsor, Henderson Bush Lima, Lewis Lima.

POTATOES, (Crop matures in about 50 to 100 days).

Plant 1' x 3', 5 pounds per 100 foot row, 500 pounds per acre.

Varieties: American Wonder, Triumph, Early Rose, Burbank's.

SWEET POTATOES, (Crop matures in 4 to 7 months).

Plant 1' x 3', 100 plants per 100 foot row, 10,000 plants per acre.

Varieties: New Era, Kauai or Medera, or any other good Hawaiian varieties.

STOCK BEETS, CARROTS, ETC., (Crop matures in 4 to 6 months).

Plant 1' x 3', 2 ounces of seed per 100 foot row, 8 pounds per acre.

Mangel Wurzel: Mammoth Long Red, Golden Tankard.

Sugar Beets: White Sugar Rose Top.

Carrots: (carrots require half the amount of seed as of beets), Long Orange, Large White Belgian, Danver's Half Long (The latter is excellent for stock or table use.)

FIELD CORN, (Crop matures in 100 to 160 days).

Plant 1' x 4', 8 to 10 pounds per acre.

Varieties: Ninety Day or Early Yellow Dent, King of the Earlies for minimum moisture conditions and warm sections, Large Yellow Dent (Parker Ranch, Yellow Dent), Reed's Yellow Dent, Golden Leaming for intermediate zone, "Kula" seed corn for high altitudes.

COW PEAS, (Suitable for man or stock—Crop matures in 100 to 150 days).

Plant 1' x 4', 30 pounds per acre.

Varieties: (heavy seeding) Groit, Rice, Gullivant, (the last two are especially suited for human consumption;— heavy foliaged) Brabham, Iron, Whippoorwill.

A Select List of Pacific Coast Seedsmen.

C. C. Morse & Co., 749 Front St., San Francisco, Cal. — Vegetables and agricultural farm seeds generally. Extensive growers as well as dealers.

Hallawell Seed Co., 258 Market St., San Francisco, Cal.—General.

Calif. Seed Co., 151 Market St., San Francisco, Cal.—General.

Chas. C. Navlet Co., 104 So. 1st St., San Jose, Cal.—General.

Eggler & Musser Seed Co., Sixth and Alameda Sts., Los Angeles, Cal.—General: beans, farm crops, etc.

Germain Seed & Plant Co., 326-328-330 So. Main St., Los Angeles, Cal.—General.

Valley Seed Co., 508-510 J St., Sacramento, Cal.—General: certified seed potatoes, etc.

Luther Burbank, Santa Rosa, Cal.—Vegetable and farm crop specialties.

Portland Seed Co., Portland, Ore.—General; seed potatoes, and field crops.

Chas. H. Lilly Co., Seattle, Wn.—General vegetable and field crops.

For seed stocks of vegetables, and agricultural crops such as alfalfa, forage grasses, corn, etc. available in Hawaii at this time, address: Extension Division, Hawaii Experiment Station, U. S. Dept. of Agri., Haiku, Maui, or Honolulu, T. H.

Note—The above list is the most reliable that could be compiled at this time. Parties knowing of other reliable seed firms will confer a favor to the Extension Division by reporting same immedialey.

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